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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09-436,158	11 09 1999	ERASMO PEREZ	M-7744US	6214

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EXAMINER

HA, NATHAN W

ART UNIT PAPER NUMBER

2814

DATE MAILED: 06 24 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/436,158

Applicant(s)

PEREZ ET AL.

Examiner

Nathan W. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 13-28 and 30-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-28 and 30-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage.

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 13-14, 17-18, 20-33, and 34-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Carter, Jr. et al. (US. 6,211,462 newly cited, herein after Carter.)

In regard to claims 13, 21, 22, 23, figs. 2a-2b and 4a, Carter discloses a semiconductor package comprising:

a metal lead frame, fig. 2b, for example, including a plurality of leads 203 (col. 3, lines 36-38) arrayed around a central region thereof; each lead having an outer end portion 203a extending away from the central region and an inner end portion 203b extending toward the central region, and a middle portion extending between the outer end and inner end portions, the middle portion being of a lead width and having a lower surface which defines a land, see fig. 2a;

a locking pad included in 201 in an outer portion of each lead adjacent to outer end, see details in fig. 2a and col. 3, lines 47-53; see also fig. 2b for the lead having the

a wire bonding pad on the top end of lead 203b, in the outer end portion of each lead and having a bonding pad width which exceeds the lead width; see also fig. 2b; and,

a die pad 201 attached to the lead frame in the central region thereof and adjacent to the inner ends of the leads, the die pad having an upper surface 200b and a lower surface 201ba as shown in fig. 2a, the lower surface having a central portion and a recessed shoulder extending around the central portion.

In regard to claim 14, the die pad is attached to the frame or to at least one of the leads by at least one tie-bar or substrate 603, fig. 6.

In regard to claim 17, the lands are rectangular, see fig. 2a-2b.

In regard to claims 18, 24, in fig 7, Carter further discloses a semiconductor die 200 attached to the upper surface of the die pad;

a plurality of conductive wires 206 bonded at opposite ends to pad on a top surface of the die and selected ones of the bonding pads on the leads; and,

a body insulative plastic molded over the die, die pad, and the leads such that the plastic body surrounds the locking pads, the bonding pads, and the recessed shoulder on the lower surface of the die pad and interlocks with them, see fig. 2a; see also, col. 6, lines 1-15.

In regards to claim 20, see fig. 2a.

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In regards to claims 26 and 33, Carter further discloses a recessed shoulder at the lower surface of the die pad such that a central portion of the lower surface inside the shoulder is exposed through a lower surface of the plastic body, see figs. 2a-2b.

In regards to claim 27, see figs. 7.

In regards to claims 28 and 32, Carter further teaches a way for resisting penetration of moisture into the package, see col. 4, lines 43-46.

In regards to claims 31-32, see figs. 2a-2b.

In regard to claim 35, Carter discloses the insulative plastic body underfills the pads, see fig. 2a.

In regard to claims 38-41, 43 see Carter's figs. 2a-2b.

In regard to claims 42, 45, see figs 2a-2b.

Regarding the processing limitation recited in (claims 34, 36, and 44, metal-displacement process, etc.), this would not carry patentable weight in this claim drawn to structure. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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4. Claims 15-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carter et al. as applied to claim 13 above, and further in view of Yagi et al. (US. 6,025,640, previously cited.)

In regard to claim 19, Carter discloses all of the claimed limitation as mentioned above except the leadframe having an alloy of copper, or iron alloy containing nickel. Yagi et al., however, teaches the leadframe 31 having an alloy of copper, or iron alloy containing nickel, see col. 10, lines 8-25.

Therefore, it would have obvious to one of ordinary skill in the art at the time of the invention was made to use such materials as shown above by Yagi et al. in Carter's since these metals have higher conductivity.

In regard to claims 15-16, the combination above discloses all of the claimed limitations as mentioned above and the width of the lead's body and its end. However, the combination does not expressly teach the exact measurements of the leads.

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the thickness of the leads because applicant has not disclosed that these thicknesses provide an advantage, is used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with either thickness because they perform the same function of connecting the device, chip, to the leads electrically.

Therefore, it would have been obvious to one of ordinary skill in the art to modify

Therefore, it would have been obvious to one of ordinary skill in the art to modify

The above combination in order to obtain the invention as specify in claims 15-16.

Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

### ***Response to Arguments***

5. Applicant's arguments with respect to claim 13 have been considered but are moot in view of the new ground(s) of rejection.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (703) 305-3507. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

primary examiner, Nathan W. Ha, can be reached by telephone at (703) 305-3507 for regular communications and 308-3432 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nathan Ha  
June 12, 2003